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Dated: January 27, 2005

Signature: Monica L. Thomas  
(Monica L. Thomas)

Docket No.: AH-CLFR:181USD5  
(PATENT)

EECE

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**In re Patent Application of:  
David H. Walker et al.**

Application No.: 10/731,554

Filed: December 9, 2003

Art Unit: N/A

For: HOMOLOGOUS 28-KILODALTON  
IMMUNODOMINANT PROTEIN GENES  
OF EHRLICHIA CANIS AND USES  
THEREOF

Examiner: Not Yet Assigned

## **INFORMATION DISCLOSURE STATEMENT (IDS)**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement is filed before the mailing date of a first Office Action on the merits as far as is known to the undersigned (37 CFR 1.97(b)(3)).

A copy of each reference on the PTO/SB/08 is attached.

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure statement shall not be construed to be an

admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 06-2375, under Order No. AH-CLFR:181USD5. A duplicate copy of this paper is enclosed.

Dated: January 27, 2005

Respectfully submitted,

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Form PTO-1449 (modified)		Atty. Docket No. AH-CLFR:181USDS5	Serial No. 10/731,554
List of Patents and Publications for Applicant's INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)		Applicant David H. Walker, et al.	
		Filing Date: 12/09/03	Group: Examiner:
U.S. Patent Documents <i>See Page 1</i>	Foreign Patent Documents <i>See Page 1</i>	Other Art <i>See Page 1</i>	

### U.S. Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date of App.
	A1	6,043,085	3/28/00	Yu <i>et al.</i>	435	325	8/27/98
	A2	6,392,023	5/21/02	Walker, et al.	536	23.1	9/12/00
	A3	6,403,780	6/11/02	Walker, et al.	536	23.1	3/3/99
	A4	60/059,353	9/19/97	Rikihisa, et al.			

### Foreign Patent Documents

Exam. Init.	Ref. Des.	Document Number	Date	Country	Class	Sub Class	Translation Yes/No
	B1	WO 99/13720	3/25/99	WIPO			English
	B2	WO 00/32745	6/08/00	WIPO			English
	B3	WO 98/16554	4/23/98	WIPO			English

### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C1	Anderson <i>et al.</i> , "Ehrlichia chaffeensis, a new species associated with human ehrlichiosis," <i>J Clin Microbiol</i> , 29(12):2838-2842, 1991.
	C2	Anderson <i>et al.</i> , "Ehrlichia ewingii sp. Nov., the etiologic agent of canine granulocytic ehrlichiosis" <i>Int J Syst Bacteriol</i> , 42(2):299-302, 1992.
	C3	Brouqui <i>et al.</i> , "Antigenic characterization of ehrlichiae: protein immunoblotting of <i>Ehrlichia canis</i> , <i>Ehrlichia sennetsu</i> , and <i>Ehrlichia risticii</i> ," <i>J Clin Microbiol</i> , 30(5):1062-1066, 1992.
	C4	Burgess <i>et al.</i> , "Possible dissociation of the heparin-binding and mitogenic activities of heparin-binding (acidic fibroblast) growth factor-1 from its receptor-binding activities by site-directed mutagenesis of a single lysine residue," <i>J. Cell. Biol.</i> , 111:2129-2138, 1990.
	C5	Chen <i>et al.</i> , "Identification of the antigenic constituents of <i>Ehrlichia chaffeensis</i> ," <i>Am J Trop Med Hyg</i> , 50(1):52-58, 1994.

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Exam. Init.	Ref. Des.	Citation
	C6	Chen <i>et al.</i> , "Western immunoblotting analysis of the antibody responses of patients with human monocytotropic ehrlichiosis to different strains of <i>Ehrlichia chaffeensis</i> and <i>Ehrlichia canis</i> ," <i>Clin Diag Lab Immunol</i> , 4(6):731-735, 1997.
	C7	Dawson <i>et al.</i> , "Serologic diagnosis of human ehrlichiosis using two <i>Ehrlichia canis</i> isolates," <i>J Infect Dis</i> , 163:564-567, 1991.
	C8	GenBank Accession Number AAY069965.
	C9	GenBank Accession Number AF078553.
	C10	GenBank Accession Number AF082744.
	C11	GenBank Accession Number AF230642.
	C12	GenBank Accession Number U72291.
	C13	GenBank Accession Number AAK28699.
	C14	GenBank Accession Number AAC68666.
	C15	GenBank Accession Number AF078555.
	C16	Groves <i>et al.</i> , "Transmission of <i>Ehrlichia canis</i> to dogs by ticks ( <i>Rhipicephalus sanguineus</i> )," <i>Am J Vet Res</i> , 36:937-940, 1975.
	C17	Harrus <i>et al.</i> , "Amplification of ehrlichial DNA from dogs 34 months after infection with <i>Ehrlichia canis</i> ," <i>J Clin Microbiol</i> , 36(1):73-76, 1998.
	C18	Jobling <i>et al.</i> , "Analysis of structure and function of the B subunit of cholera toxin by the use of site-directed mutagenesis," <i>Mol. Microbiol.</i> , 5:1755-1767, 1991.
	C19	Jongejan <i>et al.</i> , "The immunodominant 32-kilodalton protein of <i>Cowdria ruminantium</i> is conserved within the genus <i>Ehrlichia</i> ," <i>Rev Elev Med Vet Pays Trop</i> , 46(1-2):145-152, 1993.
	C20	McBride <i>et al.</i> , "A conserved, transcriptionally active p28 multigene locus of <i>Ehrlichia canis</i> ," <i>Gene</i> , 254:245-252, 2000.
	C21	McBride <i>et al.</i> , "Molecular cloning of the gene for a conserved major immunoreactive 28-kilodalton protein of <i>Ehrlichia canis</i> : a potential serodiagnostic antigen," <i>Clinical and Diagnostic Laboratory Immunobiology</i> , 6(3):392-399, 1999.

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### Other Art (Including Author, Title, Date Pertinent Pages, Etc.)

Exam. Init.	Ref. Des.	Citation
	C22	McClure, "Mechanism and control of transcription initiation in prokaryotes," <i>Ann Rev Biochem</i> , 54:171-204, 1985.
	C23	Ohashi <i>et al.</i> , "Cloning and characterization of multigenes encoding the immunodominant 30-kilodalton major outer membrane proteins of <i>Ehrlichia canis</i> and application of the recombinant protein for serodiagnosis," <i>Journal of Clinical Microbiology</i> , 36(9):2671-2680, 1998.
	C24	Ohashi <i>et al.</i> , "Immunodominant major outer membrane proteins of <i>Ehrlichia chaffeensis</i> are encoded by a polymorphic multigene family," <i>Infect Immun</i> , 66(1):132-139, 1998.
	C25	Pharmacia Biotech, <i>BioDirectory</i> , Chapter 9, 217-236, 1996.
	C26	Reddy <i>et al.</i> , "Molecular characterization of a 28 kDa surface antigen gene family of the tribe <i>Ehrlichiae</i> ," <i>Biochem Biophys Res Comm</i> , 247(3):636-643, 1998.
	C27	Rikihisa <i>et al.</i> , "Western immunoblot analysis of <i>Ehrlichia chaffeensis</i> , <i>E. canis</i> , or <i>E. ewingii</i> infections in dogs and humans," <i>J Clin Microbiol</i> , 32(9):2107-2112, 1994.
	C28	Shankarpappa, "Antigenic and genomic relatedness among <i>Ehrlichia risticii</i> , <i>Ehrlichia sennetsu</i> , and <i>Ehrlichia canis</i> ," <i>Int J Syst Bacteriol</i> , 42(1):127-132, 1992.
	C29	Storey <i>et al.</i> , "Molecular cloning and sequencing of three granulocytic <i>Ehrlichia</i> genes encoding high-molecular-weight immunoreactive proteins," <i>Infection and Immunity</i> , 66(4):1356-1363, 1998.
	C30	Yu <i>et al.</i> , "Characterization of the complete transcriptionally active <i>ehrlichia chaffeensis</i> 28 kDa outer membrane protein multigene family," <i>Gene</i> , 248:59-68, 2000.
	C31	Yu <i>et al.</i> , "Detection of <i>Ehrlichia chaffeensis</i> in human tissue by using a species-specific monoclonal antibody," <i>J. Clin Microbiol</i> , 31:3284-3288, 1993.

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